What is claimed is:

1. An accelerometer, comprising:

a measurement mass for detecting acceleration, including a housing having a cavity, a spring mass assembly positioned within the cavity, and one or more mass electrodes coupled to the spring mass assembly;

a top cap wafer coupled to the measurement mass, including a top capacitor electrode; and

a bottom cap wafer coupled to the measurement mass, including a bottom capacitor electrode;

wherein the surfaces of one or more of the mass electrodes, the top capacitor electrode, or the bottom capacitor electrode include one or more re-entrant openings.

2. The accelerometer of claim 1, wherein the re-entrant openings include one or more re-entrant grooves.

3. The accelerometer of claim 2, wherein the re-entrant grooves are herringbone shaped.

4. The accelerometer of claim 2, wherein the re-entrant grooves are criss-crossed.

5. The accelerometer of claim 2, wherein the re-entrant grooves extend from a central location in a radial direction.

6. The accelerometer of claim 2, wherein the width of the re-entrant grooves increases in the direction of the periphery of the electrodes.

7. The accelerometer of claim 1, wherein the openings include one or more re-entrant holes.

8. The accelerometer of claim 7, wherein the re-entrant holes are connected beneath the surfaces of the electrodes.

9. The accelerometer of claim 7, wherein the size of the re-entrant holes increase in the direction of the periphery of the electrodes.

10. A method of operating an accelerometer including a measurement mass for detecting acceleration, including a housing having a cavity, a spring mass assembly positioned within the cavity, and one or more mass electrodes coupled to the spring mass assembly, a top cap wafer coupled to the measurement mass, including a top capacitor electrode, and a bottom cap wafer coupled to the measurement mass, including a bottom capacitor electrode, comprising:

reducing fluid damping between the electrodes by providing one or more re-entrant openings in the surfaces of one or more of the electrodes.

11. The method of claim 10, wherein the re-entrant openings include one or more re-entrant grooves.

12. The method of claim 11, wherein the re-entrant grooves are herringbone shaped.

13. The method of claim 11, wherein the re-entrant grooves are criss-crossed.

14. The method of claim 11, wherein the re-entrant grooves extend from a central location in a radial direction.

15. The method of claim 11, wherein the width of the re-entrant grooves increases in the direction of the periphery of the electrodes.

16. The method of claim 10, wherein the openings include one or more re-entrant holes.

17. The method of claim 16, wherein the re-entrant holes are connected beneath the surfaces of the electrodes.

18. The method of claim 16, wherein the size of the re-entrant holes increase in the direction of the periphery of the electrodes.

19. A method of forming a re-entrant opening, comprising:

providing a substrate;

patterning a portion of the substrate to form a cavity having an upper cross sectional area;

bonding a wafer having an internal etch-stop layer onto the surface of the substrate;

etching the wafer down to the etch-stop layer; and

patterning the wafer to form an opening that exposes the cavity;

wherein the cross sectional area of the opening is less than the upper cross sectional area of the cavity.

20. The method of claim 19, further including:

removing the etch-stop layer.

21. A method of forming a re-entrant opening, comprising:

providing a silicon substrate;

depositing a layer of silicon dioxide onto the silicon substrate;

patterning the layer of silicon dioxide;

depositing a layer of silicon onto the layer of silicon dioxide and the exposed portions of the silicon substrate;

patterning the layer of silicon to form an opening that exposes the layer of silicon dioxide; and

removing the layer of silicon dioxide.

22. The method of claim 21, wherein patterning the layer of silicon includes:

patterning the layer of silicon to form a plurality of openings that expose the layer of silicon dioxide.

23. A method of forming a re-entrant opening, comprising:

providing a substrate;

depositing a layer of a masking material onto the substrate;

patterning the masking material to form an opening;

etching the exposed portions of the substrate to form a re-entrant opening.

24. The method of claim 23, wherein the re-entrant opening comprises a re-entrant groove.

25. A method of forming a re-entrant opening, comprising:

providing a substrate;

depositing a first layer of a masking material onto the substrate;

patterning the layer of masking material to form an opening;

etching the exposed portions of the silicon substrate to form a channel;

depositing a second layer of a masking material onto the exposed portions of the substrate;

patterning the second layer of masking material to form an opening; and

etching the exposed portions of the silicon substrate to form a re-entrant opening.

26. The method of claim 25, wherein the re-entrant opening comprises a re-entrant groove.

27. An accelerometer, comprising:

a measurement mass for detecting acceleration, including a housing having a cavity, a spring mass assembly positioned within the cavity, and one or more mass electrodes coupled to the spring mass assembly;

a top cap wafer coupled to the measurement mass, including a top capacitor electrode; and

a bottom cap wafer coupled to the measurement mass, including a bottom capacitor electrode;

wherein the surfaces of one or more of the mass electrodes, the top capacitor electrode, or the bottom capacitor electrode include one or more grooves.

28. The accelerometer of claim 27, wherein the grooves are herringbone shaped.

29. The accelerometer of claim 27, wherein the grooves are criss-crossed.

30. The accelerometer of claim 27, wherein the grooves extend from a central location in a radial direction.

31. The accelerometer of claim 27, wherein the width of the grooves increases in the direction of the periphery of the electrodes.

32. A method of operating an accelerometer including a measurement mass for detecting acceleration, including a housing having a cavity, a spring mass assembly positioned within the cavity, and one or more mass electrodes coupled to the spring mass assembly, a top cap wafer coupled to the measurement mass, including a top capacitor electrode, and a bottom cap wafer coupled to the measurement mass, including a bottom capacitor electrode, comprising:

reducing fluid damping between the electrodes by providing one or more grooves in the surfaces of one or more of the electrodes.

33. The method of claim 32, wherein the grooves are herringbone shaped.

34. The method of claim 32, wherein the grooves are criss-crossed.

35. The method of claim 32, wherein the re-entrant grooves extend from a central location in a radial direction.

36. The method of claim 32, wherein the width of the grooves increases in the direction of the periphery of the electrodes.